Collaborating to Facilitate Student Learning and Success: The Virginia Initiative for Science Teaching & Achievement (VISTA)

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Where Innovation Is Tradition

Brief Outline of the CEHD @ GMU

- Units
  - Graduate School of Education
  - School of Recreation, Health and Tourism
- Undergraduate and Graduate (Master and Doctoral) Education
- 32 Academic Programs Including 60 Masters Concentrations and 34 Certificate Programs
- Ten Research/Service Centers
- Over 110 FT Faculty (nearly 25% minority)
- 4,500+ Students (nearly 1,100 graduates in 2009) & 16,000+ Alumni
- 4 Campuses (Fairfax, Prince William, Arlington, Loudoun County) + Off-Campus Programs
- Broad range of professional development partnerships with school systems, human services agencies and other organizations

A Text
Without a Context
Is But
a Pretext
(Otis Moss)

Data on US Students and STEM Proficiency

- Trends in International Mathematics and Science Study (TIMSS) – international achievement test in math and science (STEM)
  - Fourth-graders in 8 of the 35 other countries that participated in 2007 (Hong Kong, Singapore, Chinese Taipei, Japan, Kazakhstan, Russian Federation, England, and Latvia) scored above their U.S. peers, on average
  - 8th-graders in 5 of the 47 other countries that participated in 2007 (Chinese Taipei, Korea, Singapore, Hong Kong, and Japan) scored above their U.S. peers, on average.
- PISA – Program for International Student Achievement
  - US in fourth quartile
  - Fifteen-year-old students in 23 of the 29 other participating OECD-member countries outperformed their U.S. peers.

Trends and Needs

- America's students are falling further behind students from other nations in their knowledge, skills and abilities in the critical 21st Century STEM fields
- STEM workforce needs are significant for industry, government, military and other sectors of our economy
- STEM needs must be met with improved education at both P-12 and higher education

Challenges Must Become Opportunities

VISTA

- Virginia Initiative for Science Teaching and Achievement
- Statewide Project
- Collaboration Among 6 Virginia State Universities, 47 School Divisions and the State of VA Dept of Education and SRI
- Exemplary Project and "Scale-Up"
- US Dept of Education "Investing in Innovation" (i3) Program
  - 1 of 49 awards out of nearly 1,700 submissions
  - $34M including $6M Private Sector Matching Requirement

VISTA is a Exemplary Collaboration

- Leveraging Expertise and Capacity Needs
  - Universities
  - P-12 Schools
  - State Government and Public/Private Partnerships
- Building on Existing and Evolving Relationships
  - Among Universities and With School Divisions and State Agencies AND with the Private Sector
- Nurturing Common Cause and a Shared Vision
  - Need to Improve STEM Education and Opportunities for Strengthened Teaching and Improved Student Learning and Performance

VISTA Goal

- The primary goal of the VISTA project, is to improve science teaching and student learning throughout Virginia, especially in the most high-need (high-poverty, high minority) schools.
- The project, which will be led by Dr. Donna R. Sterling, Professor of Science Education and Director of the Center for Restructuring Education in Science and Technology (CREST), is based on and extends prior research and active learning programs over the past 15 years.

Teaching and Learning

- Knowledge, Skills and Abilities of Teachers
  - STEM Expertise and Content Knowledge
  - Pedagogy and Effective Teaching Practices that "Involve & Engage" Students
- Administration and Leadership
  - Effective School Leaders
  - Faculty and School Leader Teams
  - Supplies and Equipment, etc …

VISTA Seeks

- Science teaching in Virginia, as in the country, is hindered by two fundamental, unmet needs, both of which lead to a common result: student achievement in science suffers.
  - Elementary school teachers often have teaching degrees but lack a solid grounding in the inquiry-based nature of science.
  - On the secondary level, teacher shortages have led to the hiring of many uncertified teachers who have science degrees but little or no teaching experience or training.
- VISTA seeks to reach and support every student enrolled in the public school systems of Virginia, but will offer a special emphasis on strengthening the capabilities of minority, disabled, and rural students who live in the state. It will serve as a model for science teaching and learning throughout the state and the country, and is designed to:
  - Increase teacher retention
  - Improve student scores on statewide science tests
  - Increase the number of certified science teachers in the state, and
  - Shape an environment that will nurture the next generation of scientists.

A Case Study in Exemplary Collaboration

- Power of Partnerships
- “Better Together” than “Alone”
- Leveraging Expertise and Regional Engagement
- Common Vision, Goals and Dreams
- Differentiation and Overlap (Redundancy)
- Collaboration RATHER THAN Competition
- Shared Incentives and Rewards

Unprecedented and Unique

- Universities as “Incubators for Innovation”
- Understand and Sculpt BEST PRACTICES
- Best Practices MUST BECOME Common Practices
- Common Interests Outweigh Singular Interests (“There Is No “I” in TEAM”)
- Shared funds and shared accolades

VISTA as a Model

- Consider VISTA as an "Exemplar and Model" for Multiple-Sector Collaboration
  - Universities
  - Schools
  - Public and Private Sectors
  - State, Region and Nation
- "Bringing to Scale" – BOTH the Work and Approach to Collaboration

Summary and Conclusion